



INSTRUCT-O-GRAM

THE HANDS-ON TRAINING GUIDE
FOR THE FIRE INSTRUCTOR

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Cellar Fires: Up Close and Personal

TASK

The purpose of this outline is to provide firefighting personnel with an understanding of the use and importance of proper procedures and methodologies when attacking and extinguishing fires in below-grade cellars. This will be accomplished through the use of lecture and the sharing of personal experiences.

Firefighting is a dirty and dangerous job. All of us should acknowledge this fact and work very hard at training for those times when the challenge are the greatest. Cellar fires provide just that type of confrontation.

Many buildings are destroyed by fires that started in basements. To understand the problem you must first visualize the general conditions that exist.

INTRODUCTION

The student should have a basic understanding of his or her role in the fire department, and the role they are to play during firefighting operations. In order to better participate in the fireground operation, the student should have an understanding of what strategy is and how they fit into the execution of fireground strategies and tactics.

CLASS OUTLINE

1. Cellar Fires – An Introduction
2. Contents are Normally an Issue
3. Use of SCBA
4. Stream Application Issues
5. Construction Issues
6. Hoseline Issues
7. Tactical Issues
8. Clues to Locating the Fire

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Performance Objectives

The National Fire Protection Association Standard 1021, *Standard for Professional Fire Officers Qualifications* makes absolutely no reference to the actual conduct of firefighting operations. The standard makes great mention of how to manage a fire, how to establish command, how to transfer command, etc. However, it makes no reference to a need for developing those necessary skills to conduct a firefighting operation.

Presentation Outline

1. Cellar Fires – An Introduction

Firefighting is a dirty and dangerous vocation, as well as an avocation. Perhaps there is no tougher part of the job than fighting a fire in a below-grade area. Cellar fires provide us with a real challenge to our skills and abilities.

Firefighting usually must be done from an interior stairway, often located in the middle of the building. You must often add to this the fact that there is normally a great deal of smoke and heat rising through that door that you must enter. After taking all of this into consideration, you can begin to see the severity of the hazard you will be facing.

2. Contents Are Normally an Issue

Generally speaking the contents in a cellar lead to a very hot and smoky fire. It has been found that the combustion process is slower and that there is usually a lack of oxygen, which contributes to the density and severity of the smoke. Compounding the

problem is the draft effect caused by smoke moving up through the interior staircase.

Firefighters are faced with a situation quite a bit like attacking a fireplace fire right down the mouth of the chimney. Many times the discovery of cellar fires is delayed because they begin to burn in areas remote from where someone might see them. This can give the cellar fire a head start before help is called from your fire department.

You are going to face a situation where ventilation is limited because there are not many openings in the average basement. If you are real lucky, there might be two doors and a couple of windows. In the absence of luck, you might find yourself attacking down the ONLY stairway into a windowless basement; or worse yet, a sub-basement.

3. You Must Use Self-Contained Breathing Apparatus

Self-contained breathing apparatus is an absolute necessity. In addition to the standard array of toxic vapors and gases you would face at any normal fire, you have the potential for an oxygen-deficient atmosphere when operating in a below-grade area.

4. Stream Application Can be a Problem

Putting water on the fire can be a hit or miss proposition. It has often been said that you must be able to see what you wish to hit with a hose stream. A cellar fire is a prime

example of this old axiom. Not only is the fire hard to see, you might not even be able to see the obstructions which could deflect your water away from where it could do the most good. It can also be hard to determine whether the fire is moving up beyond the reach of your hose streams.

5. Construction Issues

Construction can play a critical part in your success or failure in attacking and extinguishing cellar fires. If the building is of balloon frame construction, your first clue to that effect might be fire on an upper floor. This would hold true for elevator and dumb-waiter shafts, and various pipe chases and utility shafts. Anticipate that heat and smoke will do the natural thing and rise upward in the building.

All floors above the cellar are at risk as well as any people in those areas above the fire. You may need to get a hoseline between the fire and the people to allow for a safe exit. You must search and ventilate these upper floors to ensure that everyone gets out. This will consume a hearty share of your manpower resources, so think about extra help early on in the operation.

6. Hose Line Issues

Cellar fires are often difficult to penetrate with attack hose streams. Therefore firefighters sometimes must resort to using exterior lines projected through windows and doorways. Or they may be forced to use cellar pipes from above through holes cut into the floor for that purpose. However, your best

chance at early control and extinguishment comes from an aggressive attack down the interior stairway to the seat of the fire.

7. Tactical Issues

Successful extinguishment of the cellar fire may require you to advance two or three lines abreast into the hottest and smokiest part of the fire. This is typically from the top of the stairway leading to the basement. Ideally, there will be a second stairway which can be used to vent heat, steam and smoke from the basement as your attack advances in on the fire.

Be very careful. If there is no second entrance, the heat and steam from your attack can blow right back into your face.

Regardless of how you proceed with your attack, a line must be placed to protect the interior of the building from any fire which seeks to burn up and out of the inside stairway door. If you cannot make entrance into the basement for a quick attack, leave the door to the cellar closed and place a line to protect that point, in case the fire burns through the door before your alternate plan of attack can work.

What could constitute your alternate plan? In many cases, you would have to resort to opening holes in the floor above the seat of the fire and inserting cellar nozzles or Bresnan distributors down into the cellar space. This tactic has been known to work in many challenging fire incidents.

As you attack the fire remember two key points. It is critical to ventilate these

fires. You must let the heat and smoke out. You also need to provide a line at the rear. This line is usually not used to attack the fire, as it could lead to opposing streams. But it is available to protect against exterior fire spread.

8. Clues to Where the Fire is Located

A cellar fire may well be the toughest challenge that you will ever have to face. There is no other way to be ready for one than to learn your business, drill regularly and recognize the signs that can tell you that you are facing a cellar fire.

Other than flames and smoke coming directly out of the cellar windows, the best clue to a cellar fire is coming upon a building where smoke is coming from every level of the structure. In all of my years of firefighting, I have never personally seen this clue fail to warn me that I was facing a cellar fire.

Summary

This drill has covered a number of topics related to conducting firefighting operations in cellars. These types of fires are tough and nasty affairs, where your skill and experience will be called directly into play in a tough and dirty up-close battle. Know these facts and be ready!

This Instruct-O-Gram was created by Dr. Harry R. Carter, MIFireE, a municipal fire protection consultant from Adelphia, New Jersey. Dr. Carter is a former President of ISFSI.

Student Reference

Firefighting Strategy and Tactics – An Eight-Step Method, Harry R. Carter, Ph.D., MIFireE, Fire Protection Publications, Oklahoma State University, Stillwater, OK, 1998

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